

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. (Currently Amended) An encoder for encoding a digital baseband signal in a spread spectrum communication system, said encoder comprising:

- an exclusive "or" logic unit having a first input for receiving said digital baseband signal;
- a one bit delay unit having an input coupled to the output of said exclusive "or" logic unit, said one bit delay unit having an output coupled to a second input of said exclusive "or" logic unit;
- the output of said exclusive "or" logic unit providing an encoded digital baseband signal;
- said encoded digital baseband signal coupled to a modulator so as to modulate spread spectrum carrier signal; and
- wherein said spread spectrum communication system is a geometric harmonic modulation communication system and wherein the encoder, at least, facilitates identification of transmission errors resulting from a time varying function due to transmission through distribution transformers.

2. (Cancelled)

3. (Currently Amended) A decoder for decoding a digital baseband signal recovered from a geometric harmonic modulation spread spectrum communication signal said decoder comprising:

- a one bit delay unit having an input coupled to the output of a geometric harmonic modulation Fourier transform unit;
- a multiplier having a first input coupled to the output of said geometric harmonic modulation Fourier transform unit, and a second input coupled to the output of said one bit delay unit;
- a summer coupled to the output of said multiplier;
- a logic level determiner coupled to the output of said multiplier said logic level determiner to provide a decoded digital baseband signal wherein the decoder, at least, facilitates identification of transmission errors resulting from a time varying function due to transmission through distribution transformers.

Sub  
B/C  
Cont

4. (Original) A coder for a geometric harmonic modulation spread spectrum communication system, said coder comprising:

- an encoder including:
  - an exclusive "or" logic unit having a first input for receiving a baseband digital signal;
  - a one bit delay unit having an input coupled to the output of said exclusive "or" logic unit;
  - said one bit delay unit having an output coupled to a second input of said exclusive "or" logic unit;
  - the output of said exclusive "or" logic unit providing an encoded digital baseband signal;
  - said encoded digital baseband signal modulating a spread spectrum carrier signal;
- a decoder including:
  - a one bit delay unit having an input coupled to the output of a geometric harmonic modulation Fourier transform unit;
  - a multiplier having a first input coupled to the output of said geometric harmonic modulation Fourier transform unit, and a second input coupled to the output of said one bit delay unit;
  - a summer coupled to the output of said multiplier;
  - a logic level determiner coupled to the output of said summer said logic level determiner providing a decoded digital baseband signal at its output

wherein the encoder and the decoder, at least, facilitate identification of transmission errors resulting from a time varying function due to transmission through distribution transformers.

5. (Original) A coder according to claim 4 wherein the modulated spread spectrum carrier signal is coupled to a power line and wherein said power line is utilized to convey said encoded baseband signal information from said encoder to a receiver.

6. (Currently Amended) A method for encoding a digital baseband signal in a spread spectrum communications system, the method comprising the steps of:

- providing said digital baseband signal to a first input of an exclusive "or" unit;

performing an exclusive "or" operation on said first input and a second input of said exclusive "or" unit;  
delaying the output of said exclusive "or" unit and providing the delayed output to said second input of said exclusive "or" unit;  
the undelayed output of said exclusive "or" unit being the encoded digital baseband signal; and  
wherein said spread spectrum communication system is a geometric harmonic modulation communication system and wherein the method for encoding, at least, facilitates identification of transmission errors resulting from a time varying function due to transmission through distribution transformers..

7. (Original) The method of claim 6 further comprising the step of utilizing the encoded digital baseband output to modulate a spread spectrum carrier signal.

8. (Original) The method of claim 6 wherein the output of said exclusive "or" unit is delayed for one bit period.

9. (Original) The method of claim 7 wherein said modulated spread spectrum carrier is coupled to a power line.

10. (Original) A method of decoding a digital baseband signal encoded by the method of claim 6, when the encoded digital baseband signal modulates a geometric harmonic modulation carrier signal, the method comprising the steps of:

decomposing said geometric harmonic modulation signal into geometric harmonic modulation tones;

providing said geometric harmonic modulation tones to a first input of a multiplier;

delaying said geometric harmonic modulation tones and providing the delayed tones to a second input of said multiplier;

multiplying said first input by said second input to provide a product;

summing said product;

determining the logic level of said product, the determined logic level ~~being the decoded digital baseband signal.~~

Sub  
BHC  
Const

Sub  
BT C1  
concl

11. (Original) A method in accordance with Claim 10 further comprising the steps of:

declaring a logical zero when said product is greater than or equal to zero, and otherwise declaring a logical one.

---